MARINE REVIEW.

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Lake Freight Outlook.

About fifteen boats have been chartered during the past few days for a first trip with wheat from Dnluth at 4 cents, and some tonnage has been placed at the same rate for storage of corn at Chicago and delivery at Buffalo with the opening. These are the most important features of the freight market, as pig iron makers and iron ore dealers are still apart in prices, and there has been very little, if anything, done in contracts for ore, outside of that covered at $1.25 from Aseland and Two Harbors, immediately following the heavy sales to steel makers. There is more ore to be had at $1.25 from the head of Lake Superior, but vessel owners refuse to take it on contracts running through the entire season, their main objection being the prospects of low water. Not more than 100,000 tons at an outside has been covered from Escanaba at the even rate of $1, although it is more than probable that a large amount of tonnage could be secured at that figure, if ore dealers and furnacemen could settle on prices and prepare for the year's business. It is understood that the basis upon which a few sales of non-Bessemer ores have beeh made is $3.85 and $3.90. This represents an advance of 25 to 40 cents, about equal to that on Bessemer ores. Duluth had 7,399,059 bushels of grain in store on Saturday and 400,703 bushels afloat.

Bids on a Revenue Cutter.

The Craig Ship Building Company of Toledo was rather unfortunate in bidding for the coustruction of the revenue cutter Hudson, a small boat to be used on the coast. The Craig company was lower by $20 than John H. Dialogue of Camden, N. J., on the general bid, but $50 per foot above the latter on the three-foot extension or lengthening plan, called for as an alternative in the specifications. The Dialogue bid is the lowest on the extension plan and, although the matter has not yet been definatcly settled, it is more than probable that this plan will be carried out. Following are the bids:

Name of Builder.	Amount	Extra for lengthening.
M. A. Sweeney & Bros, Jeffersonville, Ind	$51,000	$500 per foot
Cowles Engineering Company, Brooklyn, N. Y	47,440	200 "
Samuel J. Moore & Sons Co., Elizabeth, N. J	46,750	150 "
Pusey & Jones Company, Wilmington, Del	46,505	150 "
C. Reeder & Sons, Baltimore, Md	41,485	125 "
F. W. Wheeler & Co., West Bay City, Mich	40,000	175 "
Atlantic Works, East Boston, Mass	38,832	500 "
Craig Ship Building Company, Toledo, O	36,480	200 "
John H. Dialogue, Camden, N. J	36,500	150 "

Legislative Measures.

It would seem that the Wisconsin senators, Messrs. Sawyer and Vilas, are very much interested in the enactment of a law that will secure complete statistics regarding the commerce of all lake ports, as both have introduced duplicate copies of a bill prepared by the Milwaukee Chamber of Commerce about a year ago, and which provides that all vessels in the coasting trade must report through master, owner or agent every time they enter or leave any port, whether taking on cargo or not. This measure has been printed several times in the REVIEW and is known to be unsatisfactory to some portions of the lake trade. It may become a law, and, as it is the duty of vessel interests to secure the passage of some measure of this kind, attention should now be given to this matter.

Mr. McMillan in the Senate and Mr. Stephenson in the House have both idtroduced bills asking for an appropriation of $275,000 for the construction of two revenue cutters for Lakes Ontario and Michigan. The treasury department will make a great effort to have Congress grant this appropriation.

A bill introduced in the House by Mr. Andrew seeks an amendment in the statutes providing for the purchase and registry of foreign-built ships by citizens of the United States for employment in the foreign carrying trade, but not in the American coastwise trade. If there was any possibility of this bill passing the Senate and the president, it would undoubtedly meet with vigorous opposition from the shipbuilding interests on the coast. Lake shipbuilders, and vessel owners would also have reason to fear it, as English built hulls suitable for trade between United States and Canadian ports might come up the St. Lawrence, although it is not expected that Canadian ship builders could compete with the American plants on the lakes for the building of a few boats engaged in this trade.

Congressman Newberry has introduced a bill appropriating $75,000 for the improvement of the United States marine hospital at Chicago.

A Name Was Against Him.

Capt. Weinecke of the North German Lloyd steamer Eider, which stranded off the Isle of Whight a few days ago, was on his first voyage with the boat. It is safe to say that he will never again have command of an Atlantic liner, although he was probably not to blame for the vessel going onto a reef in an impenetrable fog. One accident of this kind is a great barrier to the future of a vessel master in a passenger ship. On the White Star and other leading lines masters are compelled to work their way up to the big liners from freight boats, and in past years sail boats, owned by the different companies. Their salaries are not large considering the great responsibility. Most of them are paid about $3,000 a year and may increase this probably another $1,000, through privileges granted them. A strange story is told by a Cleveland gentleman having business with the Atlantic passenger companies, about a captain in the White Star Line who had been working his way up from the inferior boats, and was disappointed in seeing men of shorter service than he had given in the line promoted on several occasions. He asked a friend to plead with Mr. Ismay, general manager of the line, in his behalf.

"He is an excellent man," said the general manager, "and I am very sorry that circumstances are against him. His name is Williams and no master of that name can be promoted to the charge of any of our passenger boats."

A master of the name of Williams had met with an accident in that line.

A note from West Bay City says that Mr. George F. Williams, superintendant for F. W. Wheeler & Co., has resigned his position.

Quaint French Documents.

[By J. W. Walton.]

THE GALLEYS.

As lately as 1716 we find a law promulgated by Louis, King of France, by the advice of his uncle, the Duke of Orleans, regent, regulating the miserable victims who were punished by forced labor in the galleys at Marseilles.

"The order shall be given every evening by the officer commanding, in the absence of the general, in the apartment of the king's house which is devoted to the general of the galleys, at which place the superintendant and the officers of the sword and of the pen who shall have orders to receive shall regularly report. The superintendant, or in his absence the commissioners, shall report to the commander the number of convicts and Turks which they shall require for the labors of the following day, as well as the localities where they expect to use them; upon which the commander shall give his orders. The major and his aids shall have charge of conducting the Turks and convicts who shall be ordered to work, from and to the galleys.

"No movement or change shall be made in the crew of a galley except upon an order in writing from the commander, duly entered by the clerk of the galley in his register."

Then follows the order of proceedure when a crew is to be augmented for going out to sea, the galleys which are to remain in the harbor contributing their quota, and those crews in their turn being filled by fresh arrivals. The setting at liberty of a prisoner, when pardoned by the king (and the present law mentions no other way of getting a discharge,) was a very formal matter and required the presence of a number of distinguished officials, keepers and halberdiers at one time and place. The convict or Turk was to be fortified with a written discharge and safe conduct, which latter, however, forbade him ever to go to Paris or any other point where his majesty may be, under penalty of an immediate revocation of his discharge without process.

"We pray and enjoin all governors, lieutenants of the king, mayors, aldermen, provosts, captains of ports, of bridges and of passages, to let the bearer securely and freely pass in order that he may enjoy the liberty accorded him by his majesty."

History informs us that these galleys were flat-built vessels, sometimes as long as 166 feet and of about 32 feet beam, fitted with two masts and lateen sails. They were largely used on the Mediterranean, where long calms prevail. Motley in his "History of the United Netherlands," speaking of the four *galeasses* which formed part of the Spanish Armada invading England in 1588, says:

"They consisted of an enormous towering fortress at the stern, a castellated structure almost equally massive in front, with seats for the rowers amidships. At stem and stern, and between each of the slaves' benches, were heavy cannon. They were gorgeously decorated. There were splendid state apartments, cabins, chapels and pulpits in each; and they were amply provided with awnings, cushions, streamers, standards, gilded saints and bands of music. To take part in an ostentatious pageant nothing could be better devised; to fulfil the great objects of a war vessel, to sail and to fight, they were the worst machines ever launched upon the ocean."

It was not until the year 1748, under the same Louis who in his minority promulgated the law first quoted above, that the office of captain of the galley was abolished, when the slaves were removed to work in the docks and arsenals. The minimum period of their service had been fixed nearly two centuries before at ten years.

I have heard an old salt, laboring at a long oar, curse the man who invented rowing, intimating at the same time that if that unknown person had held off a little, some easier method would have been hit upon for getting a boat through the water. What must have been the feelings of the miserable wretch, who, chained to his seat, imprisoned, tortured and ill-fed, was obliged through long hours to bend his back to the sweeps? How long would it be before the poor infidel of a Turk, made prisoner and condemned to this forced toil, would become so impressed with the superior advantages of Christian civilization as to wish to be baptized?

To Secure 300 Tons of Copper.

Preparations are again being made to raise the steamer Pewabic, sunk some twenty-six years ago off Thunder Bay island, Lake Huron, in 128 feet of water, and it would seem that persistent efforts to secure a quantity of copper that went down with the boat may yet result in a great feat of deep-water wrecking. Although Oliver Pelkey, a professional diver, lost his life a few months ago in a first attempt to go down to the sunken boat after she had been located, the West Superior parties who were engaged with him in the undertaking are preparing to make another effort to raise her, and they will have competitors in a second expedition being organized by E. M. Pattin, a real estate dealer, also of West Superior. C. A. Coon of West Superior conducted the expedition in which Diver Pelkey was drowned. He still has great confidence in the diving suit used by Pelkey, and claims that with a new one of the same kind to be constructed for operations in the spring a diver can work with it as well in 200 feet as in 50 feet with an ordinary suit.

The wreck was found by the Coon expedition in the exact spot described by Capt. George P. McKay of Cleveland, who was in charge of the boat when sunk in collision with the steamer Meteor. It lies about S. E. by E., six miles from Thunder Bay island and on a direct range with the easterly points of Thunder Bay and Middle islands. A glance at the chart shows a reef in this locality extending clear across Lake Huron, and having at some points only 9 fathoms of water above it. The Pewabic rests on a gravel and rock bottom at the southerly edge of this reef within the distances noted.

Although great efforts are being made to raise this boat, there is really little of value about the wreck excepting 300 tons of copper which made up the greater portion of her cargo. Some sheep-skins on deck when the boat went down were undoubtedly washed away shortly afterwards and a small quantity of pig iron in the hold will be more of a detriment to the work of the wreckers than anything else. At about 12 cents a pound the copper would now be worth something like $72,000. Capt. McKay says that the several stories of a large quantity of money being lost in the wreck are all untrue. He is of the opinion that if a diver can be found to work at this great depth of water, the task of floating the boat may not prove as difficult as might be expected. The Pewabic built by Capt. E. M. Peck, now of Detroit, was of peculiar construction as she had but one arch, running through the center of the boat, and built with a view to great strength in its attachment to the hull. This arch was constructed with a view to giving a clear cabin and did not appear above the deck. The cabins were swept off the boat in going down, however, and it is thought that a simple method of raising the wreck would be to attach heavy chains to the strong arch and with the aid of pontoons float it toward shallow water. The boat might now be converted into a lumber barge. Her machinery is out of date and would be of no use.

In General.

West Superior parties who are talking of raising the steamer Pewabic from Lake Superior say that in event of success they will direct attention to the Atlantic, a vessel sunk in 133 feet of water off Long point, Lake Erie, with a safe containing a large sum of money. It might be well to make some inquiry regarding this safe before taking the risk and expense connected with looking for it in 133 feet of water. The safe in the Atlantic was raised, and if the work was not done by John B. Quinn of Detroit he can tell something about it. It might be well also to remind the wreckers who propose to raise the Pewabic that the Detroit owners of the boat may have some claim on the valuable copper cargo in event of success with the work.

PATTERSON'S NAUTICAL DICTIONARY.

"You may take my order for one, and I will very probably want another," said H. D. Goulder, admiralty attorney, when he ordered the Dictionary. It is a book of reference that any one connected with marine affairs cannot afford to be without. Send $5.00 and your order to the MARINE REVIEW, Cleveland, Ohio.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St. Cleveland, O.

Stocks.	Par Value.	Bid.	Asked.
Cleveland-Cliffs Iron Company.....	$100 00	$.....	$ 79 00
Champion Iron Company.....	25 00	.....	70 00
Chandler Iron Company.....	25 00	47 50	50 00
Jackson Iron Company.....	25 00	.....	100 00
Lake Superior Iron Company.....	25 00	.....	*58 00
Minnesota Iron Company.....	100 00	79 00	82 00
Pittsburg Lake Angeline Iron Co.....	25 00	148 00	.....
Republic Iron Company.....	25 00	24 50	25 50
Ashland	25 00	.....	.....
Section Thirty-three.....	25 00	6 00	8 00
Brotherton.....	25 00	2 50	3 00

* Ex. rights.

A decided improvement in the demand for iron mining stocks is noted, but prices advance slowly and holders of shares are not inclined to part with them under conditions that indicate a better market within a very short time. Advances are at the rate of about 25 cents a share, as against $1 or more per share in times previous, when prospects in the iron market were improving. The recent annual meeting of stockholders of the Cleveland Cliffs Company resulted in a renewal of confidence in the management of the properties included in the combination. Although the New York interests in the Iron Cliffs Company still holds out of the new corporation, it is not an interest large enough to seriously interfere with the plans of the management, and the stock of the Cleveland company is practically secured, only a few shares remaining out. The earnings of the past year were very satisfactory, considering the condition of the iron market, and although no promise was made to stockholders at the meeting, there is every reason to expect, in view of a large surplus, that the Cleveland-Cliffs will shortly announce the first installment of the proposed 6 per cent. annual dividend. The Cliffs company has a surplus of $1,400,000 and the Cleveland $800,000, and it is figured that the present assets of the two companies in vessel, surplus, etc., aside from any portion of their lands, would make the Cleveland Cliffs stock worth $50 a share. The land holdings of the two companies foot up 53,000 acres, of which 33,000 acres is classed as mineral land. The management favors the project of unwatering Lake Angeline The work would cost but $50,000 and the Pittsburg and Lake Angeline Mining Company also favors it, having already agreed to pay one-fifth of the cost. Delay in carrying out the plan of securing the ore beneath the lake is charged to the Lake Superior Iron Company, owning a very large portion of the land bordering on the lake. Sales of stock in the Chandler Iron Company at $49 are reported, and some owners of the stock are figuring on $60 for it before long. At even $50, which is a basis of $2,000,000 for the mine, the stock seems high, but the assets of the company are known to be between $750,000 and $1,000,000, and a product of 500,000 tons for the present year is expected. At the opening of navigation the mine will have about 250,000 tons in stock At the price already secured for ore from this mine and that of the Minnesota company the profit is estimated at close to $1.25 a ton.

The Lincoln mine is a Menominee range property that shipped a few cargoes of ore last season, and at which preparations are being made for a fair output during the coming year. Two other mines on this range, those of the Baird and Buckeye iron companies also give promise of shipments next season. Officers of these companies elected recently are: Buckeye Mining Company—Charles Loughrey of Florence, Mich., president; E. Scofield of Oconto, Mich., vice-president; A. E. Mountain, of Marinette, Mich., treasurer; F. A. Clark, L. N. Larsen, E. J. Fish and J. M. Moore, all of Marinette, Mich., directors. Lincoln Iron Company—P. J. Glynn, of Escanaba, Mich., president; J. B. Schwartz of Crystal Falls, Mich., vice-president: Frank H. Brotherton of Escanaba, Mich., secretary, treasurer and general manager; A. R. Northrup and H. A. Barr of Escanaba, Mich., members of board directors with officers named. Baird Iron Mining Company—George W. Baird of Florence, Mich., president; M St. Peter of Iron River, Mich., vice-president; A. E. Guensburg of Florence, secretary and treasurer; A. Lustfield of Crystal Falls, Mich., and Emil Guensburg of Florence, members of the board of directors with officers named.

The Cleveland Iron Company and Horton Mining Company are new Minnesota corporations. The incorporators of the Cleveland company are John McKinley, George J. Aikins and Morris O. Brooks all of Duluth, and the capital stock is $200,000. The incorporators of the Horton company are George W, Horton of Mayville, N. D., and Simon G. Wightman, R. H. Harris, W. E. Worden, S. S. Smith, H. B. Moore, W. E. Edson and R. P. Edson, all of Duluth. The capital stock is $500,000, divided into shares of $10 each.

Little progress has been made towards unwatering either the Lndington or Hamilton mines. At last accounts the water in the Ludington had been lowered a few feet but it was still between 700 and 800 feet deep and the volume was estimated at 300,000,000 gallons. It is thought that water is still flowing into the mines very freely.

At the Colby mine, Gogebic range, where shipments last year on account of a depressed market were only 9,619 tons as against 193,038 tons in 1890, ore is being raised at the rate of 1,000 tons a day and it is expected that even this heavy output will be increased shortly.

Some ore has been sold by the company operating the Anvil mine, one of the Gogebic properties from which no shipments were made last year, and it is estimated that the mine will make a very fair output, as there is about 200,000 tons of ore in sight.

S. Thayer Carr, who located the famous Jackson iron property, the pioneer mine of the Lake Superior region, died at Tombstone, Ark., a few days ago.

It is estimated that the mines of the Penn Iron Company will ship 400,000 tons next season.

Fifty Second Congress—First Session.

The following bills of interest to lake vessel owners have been introduced in Congress recently:

S. 1,681, McMillan.—Making an appropriation for the construction of two United States revenue cutters for service on the great lakes.

H. R. 4,419, Stephenson—Making an appropriation and providing for the construction of two United States revenue cutters for service on the great lakes.

S. 1,949, Sawyer.—To amend section 3117 of the revised statutes of the United States, in regard to the coasting trade on the great lakes.

H. R. 4,001, Newberry.—For the improvement of the United States marine hospital at Chicago.

H. R. 4,330, Durborow.—To repeal House resolution No. 104, first session, Fifty-first Congress, granting to the secretary of war a permit to license to use a pier at the mouth of the Chicago river.

H. R. 4,534, Stephenson.—To extend to Marquette, Mich., the privilege of immediate transportation of unappraised merchandise.

H. R. 4,544, Andrews.—To amend the revised statutes of the United States so as to allow the purchase and registry of foreign built ships by citizens of the United States for employment in the foreign carrying trade.

H. R. 4,586, Bunting.—For the improvement of navigation of the Niagara river and Port Day harbor.

A Huge Coal Bucket.

The Ludlow Manufacturing Company of Cleveland tested an immense coal bucket a few days since with more than satisfactory results. The bucket is 66 inches in diameter and 84 inches high and contained 8,280 pounds of Massillon coal. It tipped as easily as the buckets of smaller size but with much less jar than any before built. The success of this trial seems to solve the problem of heavier and more powerful machinery for handling soft coal. The trouble heretofore has been to get a bucket that would be successful in handling such a large amount. A turn over bucket could not do it.

National Association of Marine Engineers.

WASHINGTON, D. C., Feb. 4.—The 17th annual convention of the National Association of Marine Engineers, assembled in this city on the 25th ult., and remained in session throughout the week, terminating their proceedings late Saturday evening. This body is a national organization, and consists of representatives of different branches of the Marine Engineers Beneficial Association, which has a membership of 5,000, and which includes over 75 per cent. of the engineers in the merchant marine of the country. There were about sixty delegates present, and each of them wore on the lapel of his coat a neat gold badge, representing a steam cylinder head with the initials, "M. E. B. A." on the border. The organization is especially strong on the lakes and is steadily increasing its strength in every quarter. The sessions of the body were secret, and this report is not official. The meetings were held in one of the parlors of Willard's hotel.

Monday's sessions were almost exclusively devoted to business details. Committees were appointed on credentials, on resolutions, on distribution, on foreign correspondence, on secret work, on official expenses, on per capita tax, on mutual aid, on compensation and warrants, on finance, petitions and grievances, on legislation, on boilers and machinery, and on statistics. The officers, all of whom were in attendance, were, Ambrose L. Boyes of New York, past national president; John H. Galwey of Detroit, Mich., national president; E. H. Tucker of San Francisco, national vice-president; James Henry Harris of Chicago, national secretary and George Uhler of New York, national treasurer.

Tuesday, the sessions were consumed in listening to reports of the subordinate bodies presented by the delegates, also the reports of the officers, which were read and approved. At this session a resolution was adopted expressing the association's approval of the strong position taken by President Harrison towards the protection of the rights of American sailors in foreign waters. The reports of committees were heard but it has been impossible to obtain any detailed information, as the nature of these reports, especially those on petitions and grievances. On this subject a number of delegates questioned by your correspondent firmly declined to furnish any information. One gentleman admitted that the strike last spring in which the lake engineers were defeated was touched upon, but did not elicit, so he said, anything but dispassionate utterances, and that perfect harmony was maintained throughout the consideration of the question but as to the decisions arrived at he was as mute as an oyster. In speaking with another delegate he positively denied that this question came up in the convention at all, and in a conversation with the president, Mr. Galwey, he made the point blank statement that no resolutions bearing upon the lake strike were brought up during the meeting. A word here and a word there, taken collectively, impressed the REVIEW representative that there was a minority who held some pretty strong opinions back of their reticence regarding that strike, and the inference was also obtained that if they had their way President Galwey, who had full charge of the strike, would be retired on this account and a more acceptable successor selected. Your correspondent may be in error on this score but he was constrained to arrive at this conclusion with the limited information at his command, all of which tended in the direction indicated.

On Wednesday the reports of the committees were continued and the reports of district deputies were submitted and disposed of. On the call of the roll of the association for the introduction of new business, all the representatives were given an opportunity to present such matters as they desired to come before the association, all of which was referred to the appropriate committees. Association No. 49, designated national vice-president E. H. Tucker of San Francisco, as its proxy representative but the president deciding that under the law it would be illegal for him to act, that officer withdrew all measures introduced by him in the name of No. 49. The president also decided that an officer of the association was not entitled to offer a resolution but that he could discuss the same. This ruling created a spirited discussion, in which quite a large number of members participated, and an appeal was taken from the ruling of the chair, but it was defeated by a vote of 31 to 8. After all the associations had been heard, the journal was read and approved.

The committee on resolutions reported a resolution commending the course of the administration upon its action in the matter of the Chilean trouble and offering the services of the marine engineers in case of war. This resolution was unanimously adopted, and three copies of the same were drafted and signed by each delegate. The seal of the organization was then affixed and the documents were forwarded to President Harrison, the United States Senate and the House of Representatives. A special committee of three, consisting of Representatives Wood, Tucker and Bragg, were entrusted with the delivery in person of the documents.

The committee on legislation, consisting of R. B. Dick of Philadelphia, D. C. Martin of San Francisco, J. J. Sipperly of New York, John Mittendorff of Baltimore and J. B. Wood of Cleveland, presented a lengthy report which was adopted. This report reiterated the importance of certain legislation which President Galwey said the association had been working for for the past six years. The exact nature of the legislation recommended was not obtainable but it pertained to the welfare of the marine engineers throughout the country. The rest of Wednesday's session was devoted to hearing the reports of the auditing and other committees and to the consideration of the constitution, after which the journal was read and the convention adjourned for the day. The secretary having been instructed by the association to write a letter to Hon James A. Dumont, supervising inspector general of steam vessels, that official replied setting 10 o'clock on Thursday as the time when he and the other members of the board of supervising inspectors, together with the chief engineer of the United States navy, would confer with the delegates regarding legislative measures pertaining to the welfare of the engineers and upon other topics of importance to the merchant marine of the country.

The sessions of Friday and Saturday were taken up with the reports of the remaining committees and in speaking of the day's meeting President Galwey said: "We have had considerable business before us and several new matters relative to marine legislation have been discussed and put into shape, the exact scope of which, however, I do not feel at liberty to discuss it in its present formative stage." The national secretary was authorized to write to Private Secretary Halford and ask that a reception be accorded to the association by the president, and on Friday the convention went in a body to the White House where they were received by the president. It was decided that the next annual gathering be at Chicago some time during the World's Fair. The following officers were elected: Mr. John H. Galwey of Detroit, national president, re-elected; Mr. D. C. Martin of San Francisco, national vice-president; Mr. J. H. Harris of Chicago, national secretary and Mr. George H. Uhler of New York, national treasurer. Appropriate resolutions were adopted on the death of James Reid, past national president and past representative.

The legislative committee, of which President Galwey is chairman, will remain in Washington for a few days. President Galwey will institute a branch of the association here, but the object of the committee's stay is to secure a hearing before the commerce committee of the house on Senate bill No. 1,755 introduced by Senator Frye. This is a measure which proposes to carry into effect some of the recommendations of the International Marine Conference. One provision of the bill is to give the supervising inspector the right to fix the number of engineers a freight steamer shall carry. The examination proposed for chief engineers is very technical and the measure is understood to be very unsatisfactory to both engineers and owners of merchant vessels.

Experimental Features in a Lumber Carrier.

Special Correspondence to the MARINE REVIEW.

MILWAUKEE, Wis., Feb. 4.—Several important experimental features are to be introduced in the steamer now being constructed at Sheboygan by Rieboldt, Wolter & Co. for themselves. These features are confined to the machinery of the craft, and to Capt. Conrad Starke belongs the credit of their conception. The engine a fore-and-aft compound, will embrace the triple expansion principle, with the intermediate cylinder omitted. High steam must be carried, as it has to pass from a 16-inch high pressure cylinder into a low pressure cylinder 43 inches in diameter. It is claimed that engines embodying this principle are being operated in England with better results than can be obtained from triple expansion engines of similar size. Steam is to be supplied by a water tube boiler of Capt. Starke's design, for which a patent will soon be issued. This boiler will be 10 feet in diameter and 12 feet long, with a shell of inch steel. It will contain 300 tubes, presenting a heating surface of 3,000 feet and is calculated to maintain easily a working pressure of 150 pounds of steam. In a Scotch-type boiler of the same size the heating surface would not exceed 1,600 feet, and the advantage over the latter in consumption of fuel ought therefore to be nearly 50 per cent. The ends of the tubes will be submerged. The engine with a 36-inch stroke, is intended to swing a wheel 9½ feet in diameter at the high rate of 150 revolutions per minute and thus insure considerable speed for the steamer whose lines are calculated to combine this quality with good carrying capacity. Another feature of the craft will be a steam steerer designed by Capt. Starke for which he claims the merits of stability and cheapness of construction. The new steamer is to carry lumber from Ashland to Chicago on a season contract embracing 15,000,000 feet. Her capacity is estimated at 700,000 feet.

The Milwaukee Tug Boat Line has applied to the Treasury Department for permission to change the name of the tow barge Helena to Amboy. As the company owns the steamer Helena also, it is thought the request will be readily granted.

Capt. Ephraim Small, last season in the steamer J. M. Allmendinger, has been appointed master of the steamer Arcadia. Capt. James O'Brien, last season in the steamer R. A. Seymour, will succeed Capt. Small in the Allmendinger. A report that Capt. Marion Tinney will go into one of the Gladstone whaleback steamers is pronounced unfounded by the management of the Milwaukee Steamship Company. He will again command the steamer Frank L. Vance, and Capt. Charles Davis the steamer Roswell P. P. Flower.

CHICAGO LAKE INTERESTS.

WESTERN OFFICE, MARINE REVIEW,
No. 210 So. Water Street, CHICAGO, Ill., Feb. 4.

Very little is doing in marine circles here this winter. About once a week a boat goes to the elevators for grain. It is now the Emily P. Weed's turn. The demand so far for winter loading has been small, but vesselmen have not worried themselves about that as they feel there will be plenty of grain before spring. Just now a great deal of interest is centering on the Cleveland iron ore situation. Chicago vesselmen are bulls, and it will take better than $1.25 from Ashland to get them.

E. P. Henry has become local agent of the Lehigh Valley line. Mr. Henry, although a young man comparatively, is an old salt water dog and has sailed on many seas. I have watched him these five yeas as he rustled for the Lehigh Valley, and can testify that he has a "get-there" move on himself. The Lehigh did a wise thing when he was made local agent.

There is any quantity of talk about increasing the passenger fleets on Lake Michigan the coming season. The Seymour line is trying to secure another boat to run in connection with the Petosky. The Northern Michigan people have some big scheme with a hotel in it, about all of which they do not say much. One or two new routes are to be opened up. It's the World's Fair that is stirring up the boys.

The deep water delegates to Washington did good work, to judge by the dispatches. The press dispatches at any rate helped the cause along in good shape. If this Congress makes an appropriation for the 20-foot channel, the people who worked so hard for the Detroit convention can take considerable credit for it. I still think that if the Detroit convention had adopted the list of light houses prepared by the Cleveland Vessel Owners' Association and not been chary generally of the word "local," its scope of usefulness would have been much broader. As it is, the fight for light houses and that for deep water have had to be made in detail, thereby weakening both.

The Milwaukee & Eastern Transit Company had the City of Fremont here a week trying to get her across the lake into St. Joseph. There was probably not much profit in her cargo. Winter navigation for boats not especially built for it is both risky and unprofitable. Some people are now finding it out.

The number of sailors who call at the Custom house or barge office for blank hospital certificates is astonishing. It seems that half the sailors in Chicago are now suffering from some malady, which requires a visit to the marine hospital. Customs officers have had a deal of trouble here to convince captains that they must give these certificates to sailors whether they believe the latter are sick or not. It is for the hospital staff to pass upon the severity of a sailor's complaint, not the captain's. The certificate shows simply that the applicant is entitled to the care of the marine hospital corps. This is a very simple point, but it frequently causes complaint at the custom house. Then an officer must be sent to inform the captain he must issue the certificate if the man has sailed with him.

Fixing Wages of Engineers.

The managers of the Cleveland Vessel Owners' Association are at work on a schedule of wages for engineers, boats being graded as to power. Although all of the details have not been completed, it is very probable that the schedule will show an advance of at least $10 a month over last season's wages. There will be four or five classes, the first being metal boats with water bottoms and triple expansion engines,which will very probably pay $125 for chief engineers. Other grades will run $115, $110, $100 and probably $90 for the lowest class. The wages of seconds are proportionately higher. Official announcement of the schedule will be made within the week.

Convertible Quadruple Expansion Engine.

A recent number of Industries of London describes a convertible quadruple expansion engine designed by Mr. Frank Chaese of Hartford, Conn. The full sized engine has cylinders 14 inches, 22 inches, 32 inches and 45 inches diameter, and 28 inches stroke, and is intended to work at a boiler pressure of 200 pounds per square inch. The inventor's aim has been to construct an engine for marine purposes, which shall be serviceable after any ordinary accident. The crank shaft for this reason is made in two similar sections, flanged and connected in the middle with a dowel having ample service in place of the ordinary coupling bolts, thereby greatly facilitating the disconnection of the engines. In case of a breakdown with the forward engines, the two sections of shafting are uncoupled and steam is admitted to the after engine by means of a reducing valve. The after engine then runs as a compound condensing engine. Should this engine be disabled, the connecting rod is removed from the crank-pin and secured out of the way; connection is made between the first intermediate exhaust and condenser, and the forward engine is then run as a compound condensing engine. The engine is of the vertical inverted type, with cylinders arranged in pairs, the high and first intermediate pressure cylinders forming the forward engine, and the low and second intermediate pressure cylinders, forming the after engine. A system of duplication of parts has been adopted, while the space required vertically and horizontally, has been reduced to a minimum. The valves are of piston type, the upper portions being made slightly larger in area than the lower portions, in order to balance the valve gearing. The upper cylinders are supported on six short wrought-iron columns, any one of which may be readily removed if required. The valve gearing is a modification of the Allan straight link type. The link is suspended in such a manner that the slipping of the link block is reduced, and a quicker admission and cut-off affected. The engines can be reversed either by steam or hand; for the latter method a small force pump is provided, connecting to the same oil vessel and levers as the steam reversing gear. A few strokes of the pump is sufficient to reverse the engine. The steam reversing device consists of a steam and an oil cylinder connected together, and giving motion to the valve spindles and links. A lever to the steam cylinder and a two-way valve to the oil cylinder allow of reversal at will, and also of the fixing of the cut-off at any point. A sensitive governor is provided, and the eccentrics are keyed onto the shaft in the usual manner, with the exception of the forward go-ahead eccentric, the angular advance of which may be varied by a simple device which is rigid when locked. The condenser is said to be very efficient. Water from the circulating pump is discharged in two directions—around the casing and through the tubes. The hot-well has water guages, vapor pipe, and man-hole, and forms part of the condenser casting. All the pumps are worked from the main engine. There are two feed-pumps and two-bilge pumps. Either feed-pump is sufficient for the boilers under ordinary working conditions. The air-pump is single-acting, and is placed low down on the condenser to avoid trouble in working. The circulating pump is double-acting, and of ample capacity for water of all temperatures, and the main injection valve being readily accessible.

There is an auxiliary engine bolted to the bed-plate, a worm from which engages with a wheel on the main shaft. A swinging bracket and clutch allow the worm to be thrown out of gear instantly, as this arrangement is only designed for turning the main engines when overhauling, etc. This auxiliary engine can be used for pumping purposes, suitable connections being made to the condenser, hot-well, sea, or bilges. The thrust block has a double set of conical rollers running in oil, which take the full thrust of the propeller, while adjustable plates fore and aft take up the wear.

Miscellaneous Matters.

Capt. James Davidson of West Bay City, has gone to Bermuda and the West Indies, to be away about five weeks

L. H. Stone of Vermillion, C. H. Woodruff of Sannusky and James E. Mills of Cleveland were elected to membership at the last regular meeting of the Cleveland lodge, E. M. B. A.

Lumber dealers at the head of Lake Superior are figuring on a more marked increase on their business than that of last season, when this trade furnished employment to a very large number of vessels. It is figured that Mitchell & McClure and Merrill & Ring will alone send out about 100 cargoes.

By a resolution of the last Congress the secretary of war was permitted to grant a revocable license for the use of the government pier at Chicago to one of the railway companies entering that city. Vessel owners who signed a petition asking that this permission be granted by the secretary of war found later that the railway company was monopolizing a very large portion of the river to the detriment of the general vessel interests. Mr. Durborow has now introduced a bill in the House calling for the repeal of the resolution.

It would seem as though the New York capitalists in the American Steel Barge Company do not want to take up the scheme for an immense passenger steamer of the whaleback type, which was proposed to run between Chicago and Mackinaw with the opening of the World's Fair. On his way to West Superior after a meeting of the barge company in New York, Capt. McDougall went to Chicago, where he met parties interested in the barge company and others who think of forming a new company for the ownership of the big boat. It is not known whether anything was accomplished in this direction or not, but work on the boat has not been begun.

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, ... } PROPRIETORS.
F. M. BARTON, ... }

HOMER J. CARR, - - - Associate Editor and Manager Chicago Office, 210 South Water Street.

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The books of the United States treasury department contain the names of 3,510 vessels, measuring 1,063,063.90 tons in the lake trade. In classification of this fleet the lakes have more steamboats of 1,000 to 2,500 tons than the combined ownership of this class of vessels in all other sections of the country. The classification is as follows:

Class.	Number.	Tonnage.
Steam vessels	1,527	652,922.25
Sailing vessels	1,272	328,655.96
Canal boats	657	67,574.90
Barges	54	13,910.09
Total	3,510	1,063,063.90

According to the report of William W. Bates, United States commissioner of navigation, 46 per cent of the new tonnage of the country was built on the lakes during 1889. This is a percentage greater than the work of the Atlantic coast and western rivers combined, and almost equal to the whole work on the Atlantic and Pacific coast. In 1890 the tonnage built on the lakes is but very little less than that built on the Atlantic and Gulf coasts. Tonnage built on the lakes during the past five years was as follows:

	No. of boats.	Net Tonnage.
1886	85	20,400.54
1887	152	56,488.32
1888	222	101,102.87
1889	225	107,080.30
1890	218	108,515.00
Total	902	393,597.03

St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Entered at Cleveland Post Office as Second-class Mail Matter.

IN the February number of the Engineering Magazine of New York, Lieut. Col. W. R. King of the army engineer corps answers the article entitled "Worthless Government Engineering." which appeared in the January number of the same magazine and was written by George Y. Wisner, an engineer in charge of harbor work at the mouth of the Mississippi and in Texas. This is the same article to which Col. William Ludlow of Detroit replied briefly but very forcibly in the MARINE REVIEW, issue of Jan. 14, and it would seem that unless Mr. Wisner calls to his assistance some of the other civil engineers throught the country who are known to entertain hostile feelings toward the army corps, he will find, even in the matter of controversy through magazine articles, that he has undertaken a very big job in publicly criticising the work of the army engineers. It is probably known to most readers of the REVIEW who have been brought into close relations with army engineers through the large amount of river and harbor work under way on the lakes for several years past, that one class of civil engineers in this country has on several occasions, in convention and otherwise, denounced the present improvement system of conducting river and harbor work. Among other things, it has been claimed that the system is unfair to the civil engineers of the country, that the work was turned over to the engineer corps for the purpose of providing employment for an idle portion of the army officers and that these officers are trained for fortification work and not for harbor work. In every case agitation of the subject received little attention outside of the engineers themselves, who were charged with becoming restive under large appropriations from Congress each year in the distribution of which they could have no part. They were met also with such fortifications as the great integrity of the army officers, low salaries in the corps and an economical managemant of everything pertaining to its affairs. For these reasons, mainly, little attention was paid to the several efforts of the civil engineers to bring the subject before Congress, and it is not probable that another movement, of which Mr. Wisner's paper is thought to be a forerunner, will be of more importance than its predecessors. His assertions are of a loose nature, without dates, names or anything specific, and they are ably refuted in the replies referred to, but not least among them is the charge "that the managers of some technical journals do not give the matter the support they should, for fear of losing their columns of profitable government advertising." Mr. Wisner would not have made this statement if he had investigated the question of "profit" in government advertising. Legal rates are demanded by the government in its advertising contracts and some of the best newspapers of the country refuse the business on account of its unprofitableness.

AT the hearing granted to representatives of the Detroit deep waterways convention by the river and harbor committee of the House and the commerce committee of the Senate, Gen. Poe was again called upon for an opinion as to the possibility of a reduction of the level of the lakes by deepening their connecting channels. Although it is a cardinal principle in engineering that the system of dredging at one point in a body of water connecting others of different levels and depositing the material thus taken out at another place in the same body of water does not change the surface level in any case, this question has been raised many times and will probably come up again at regular intervals in the future. A Toledo man, Samuel R. Backus, raised the question this time, and it has been given many columns of space in daily newspapers on the lakes. With a great deal of patience, however, Gen. Poe has answered all questions regarding the subject, on the basis that one of the very first requirements when deepening the bars in a channel connecting pools having different levels, is that sufficient of the cross-section at the point of deepening must be obstructed to compensate for the increase due to the excavation. The excavation at Lime-Kilns crossing, he says, may be taken as an example. The stone removed from the excavation was deposited abreast of it, in a part of the channel that was not likely to be required. The contracts for improving Hay lake channel provide for the necessary dams to maintain the volume of discharge as at present. At St. Clair Flats canal proper precautions were taken to maintain the volume of discharge. At Lime-Kilns crossing the course taken was hardly necessary, because the entire fall from the head of the improvement to Lake Erie does not exceed three inches; hence a rise of that extent in the level of Lake Erie would entirely drown out the whole Lime-Kiln crossing improvement. But it was most convenient and economical to deposit the stone in accordance with the principle referred to.

THE aggregate of estimates for river and harbor improvements recommended by the United States engineers is about $60,000,000. It is questionable whether the house will support a bill for over $15,000,000, but even at this figure the lakes may expect fair treatment from the river and harbor committee. The committee is disposed to favor only measures of urgent and most deserving nature and on this account lake interests need entertain no fear. Big projects may receive recognition from the committee for small appropriations for the work of a single year, with engineers empowered to make contracts for the entire work, and in this way $15,000,000 may do more than double that amount under the old rule.

THE well-read man whose opinion carries weight and value is ever ready to examine standard books of reference. Strange as it may seem on the other hand the man whose education is limited and who is therefore in need of all the information he can gather, is bigoted enough to claim that he knows all there is to know about his business.

An Auxiliary Naptha Yacht.

The illustration on this page represents the 35-foot auxiliary naptha yacht Alma, purchased this last season from the Gas Engine & Power Co., Morris Heights on the Harlem, New York City by Chesbtough Bros., Emerson Mich. Her length over all is 35 feet, head room 5 feet 3 inches, beam 9 feet, draught 3 feet 2 inches. The keel and frames are of white oak, keel lead ballasted, and the planking is white cedar, all being copper fastened and riveted. The decks are white pine, oil finished, and other parts are of bright varnish finish. The engine is 10 h. p. naptha with copper tank condensing pipes. The wheel and shaft are of bronze. Her rigging consists of mainsail, jib and jigger double bighted twill sails, with wire stays, manilla halliards etc. Among the forty or fifty yachts building at the Morris Heights works is one 40-footer for Chas A. Lamb, National Tube Works Chicago Ill. Three lake steam-yachts, the Nydia, Petrel and Peerless have naptha launch tenders. Following is a list of naptha yachts owned on the lakes.

Cleveland, O.—Mr. S. H. Chisholm, Mr. C. W. Harkness, Mr. W. R. Huntington, Mr. D. E. Stone, Pickands, Mather & Co., Mr. John Corrigan, Mr. William De Mooy. Euclid, O.—Mr. O. A. Stray. Sandusky, O.—Mr. J. O. Moss, Mr. F. A. Hubbard, Mr. E. H. Marsh. Toledo, O.—Mr. H. P. Tobey, 140 Water street, Mr. John Weber (3), Mr. George H. Van Vleck. Erie Pa.—Mr. J. E. Swap, Mr. Jackson Koehler. Detroit, Mich.—Mr. Gilbert Hart, Hart Emery Wheel Co., Mr. H. B. Scott, Newcomb, Endicott & Co., Mr. Fred. E. Butler, Mr. W. C. McMillan. Escanaba, Mich.—Mr. George Preston. Grand Rapids, Mich.—Mr. Charles S. Hazeltine, Mr. W. O. Hughart, Mr.C. B. Judd, Bissell Carpet Sweeper Co., Mr. G. H. Long, Keystone Gang Saw Mills, Mr. Henry Sullivan, Mr. A. B. Turner, Editor of the Eagle, Mr. George N. Davis, Mr. C. L. Ives, 174 Lyons street. Marquette, Mich.—Mr. J. M. Longyear. Muskegon, Mich.—Mr. John Torrent, Emerson, Mich.—Messrs. Chesbrough Bros. Manistee, Mich.—Mr. Charles Ruggles. St. Ignace, Mich.—Rev. W. H. Law. Duluth, Minn.—Baptism River Club. Chicago, Ill. Dr. J. H. Buffum, 101 State street, Mr. John Dupee, Jr., Board of Trade, Mr. Charles A. Lamb, National Tube Works (2), Mr. George A. Seaverns, Board of Trade, Mr. W. H. Aldrich, 122 La Salle street, Mr. Edwin Norton 46 River street, Mr. George J. Parker, 91 Board of Trade, Mr. E. R. Gilman, 190 Fifth avenue.

The Canadian Pacific Railway will make Windsor, Ont., its chief shipping point preceding and during the World's Fair. Contracts have been let for building docks over a quarter of a mile in length along the river front, and the company's steamer now running to Lake Superior will be transferred to the route between Windsor and Chicago.

Around the Lakes.

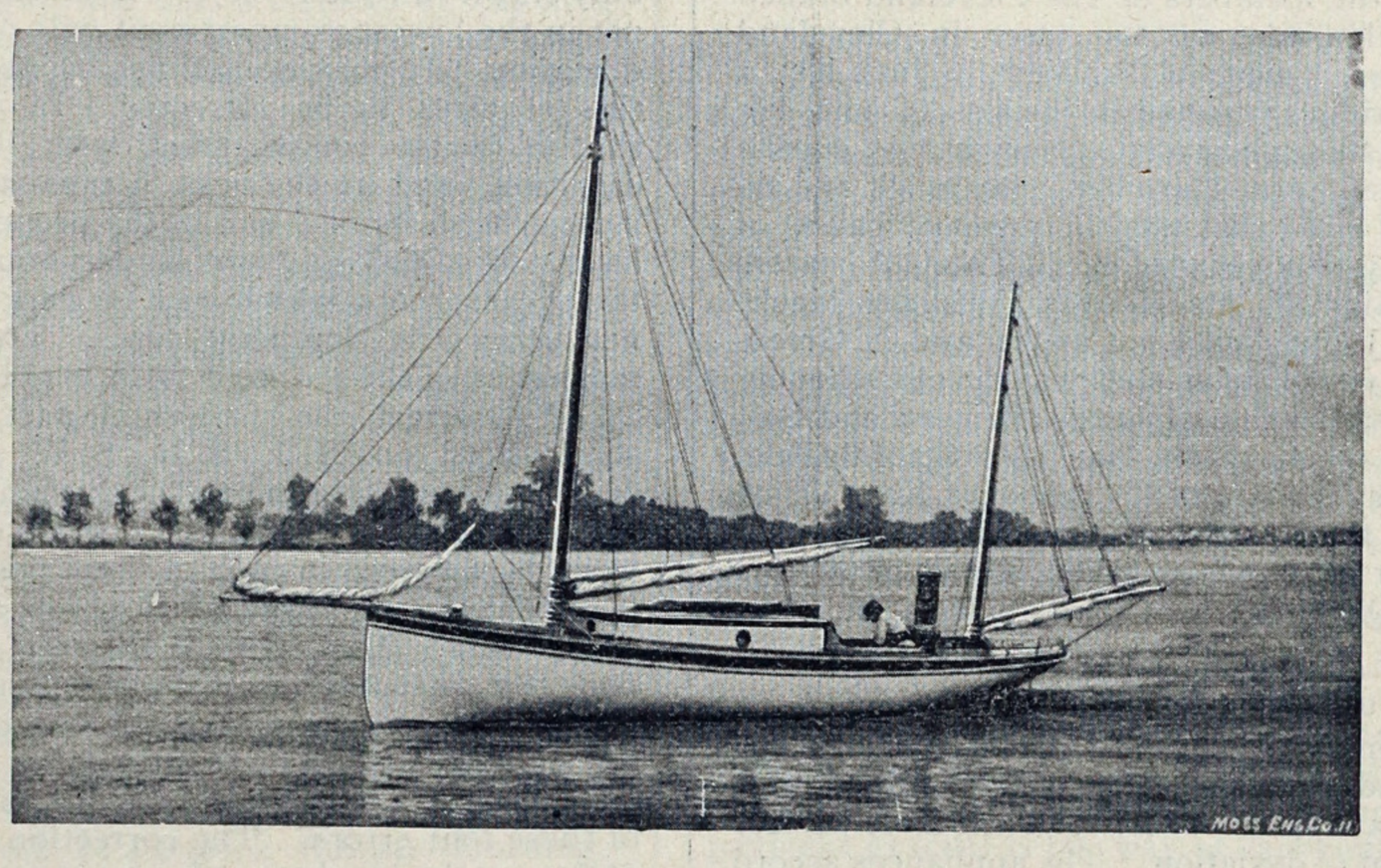
Capt. R. G. Coburn, born in Seneca Falls, N. Y., in 1825 died at Superior a few days ago. He was one of the pioneers at the head of Lake Superior and had built up a large lumbering business.

Capt. P. MacFarlane, long in the Lehigh Valley line, has resigned from that employ. He will command one of the package freight whalebacks that will run between Gladstone and Buffalo the ensuing season.

As a result of the opening of the St. Clair tunnel, the Grand Trunk Railway is calling for tenders from parties willing to purchase one or both of the Canadian ferry boats Huron and International, now lying at Point Edward, Ont.

Officers of the Ship Owners' Dry Dock Company, Cleveland, elected Tuesday, are as follows: Capt. Thos. Wilson, president; Capt. George Stone, vice-president: August Cold, secretary; Harvey D. Goulder, treasurer; George Quayle, superintendent. Directors—Valentine Fries, of Milan, O. and H. D. Coffinberry, Robert Wallace, Capt. Thomas Wilson, Capt. Peter Minch and Capt. George Stone, all of Cleveland.

Capt. F. B. Hackett of Amherstburg, will be prepared for wrecking work in the vicinity of the mouth of the Detroit river with the opening of another season. He has purchased the big Canadian tug Wales from the Muskoka Lumber Company and will station her at Amherstburg with hawsers, pumps, divers and everything complete for wrecking purposes. She is 150 feet long, 24 feet beam, 12 feet hold and registers 325 tons; has two 22x22 high pressure engines and two boilers 8x15 feet. She will carry about 400 tons and will be able to lighter the largest class of boats. The tug International will work in connection with the Wales.



The whaleback steamer for which the Marinette Iron Works of West Duluth is building engines, will have a complete outfit of Worthington pumps. One of the old boats which has made a record on the lakes is the steamer J. C. Pringle, which will make some extensive alterations this winter. She is now owned by the Hollister Transportation Company. The attached air pumps have given considerable trouble, especially during the past season, and the Worthington condenser will take their place. The most approved method of heating the feed water will be adopted, and there seems no doubt but that this boat will improve upon her already good record.

The Hayden & Derby Manufacturing Company of New York, has added the Crane Company of Chicago, and Strong, Carlisle & Turney of Cleveland to their list of lake agents. The Metropolitan injector manufactured by this company is rapidly growing in favor with lake users. It has been adopted by the American Steel Barge Company of West Superior, Wis., which company is now being supplied with injectors for the eight barges they are building. The Hayden & Derby Manufacturing Company also has the contracts for supplying the government vessels now building at the yards of F. W. Wheeler & Co , West Bay City, and at the Globe Iron Works Company, Cleveland.

Excelsior Marine Benevolent Association.

CAPT. BENJAMIN CHAMBERS.

Capt. Benjamin Chambers, who died in Cleveland on Friday last, was highly respected among associates in the Excelsior Marine Benevolent Association, and the funeral on Sunday was largely attended by the members of the Cleveland branch of that organization. While going up the river in Cleveland with his boat, the steamer Queen of the West, in June last, a collision with one of the bridges resulted in the loss of one life and injury to others. Although a man of very strong constitution, this accident troubled Capt Chambers very much and resulted in a derangement of mind that was the primary cause of his death. He was forty-two years of age. The pall bearers at the funeral were Captains N. E. Hoover, William Mack, Richard Neville, Thomas Jones, William Carlyle and A. Greenley. Capt. Chambers' first vessel, as master, was the old schooner Granada. Afterwards he sailed the schooners Samana and Bolivia and from the latter he went into the Maria Martin of Buffalo. From the Martin he went as captain of the schooner Kate Winslow of Cleveland and from there into the tow barge Brunette, which he sailed for one or two seasons, when he was appointed master of the steambarge Queen of the West, which he commanded last season.

An Adjustable Compass.

A new adjustable binnacle that will attract attention has recently been designed and patented. It is self contained, having within the binnacle box appliances for effecting most perfect compensation or adjustment of deviation. The appliances accord with the latest scientific principles, which are often violated by the adjuster, because there happens to be no convenient position for magnets. It is always desirable that the compass be adjusted by a skillful professional, but where one cannot be obtained an intelligent master can, with this new binnacle, do his own adjusting. It consists of a strongly built hard-wood box, about 36 inches in height and from 12 to 16 inches square, according to the size of the compass used. Within this hard-wood box are two horizontal bulkheads or partitions, the object of which is to strengthen the box and to support the brass tube containing the heeling error corrector,**h h*. On three sides of the binnacle are shallow closets, containing shelves for receiving the magnets ** m m*, which correct the semi-circular part of the deviation. These magnets are made of hardened steel, eight inches long and one-half inch square. They are painted, the north ends red, and the south ends blue. The spaces between the shelves are of proper size to just receive the magnets. After an adjustment has been made, the doors are closed and locked, securing the magnets in position. The quadrantal correctors consist of two hollow iron globes **q q*, which are supported upon brass brackets, and held in position by brass bolts. These bolts pass through slots in the brackets, which permit the globes to be moved in or out, and afford ample scope for all ordinary cases.

When the action of a magnet, or of an iron ship pulls the compass, the north point of the card is pulled or drawn. A pull forward means that the north point is drawn toward the bow; a pull aft means that the north point is drawn toward the stern; likewise a pull to starboard or to port means that the north point is drawn towards the sides of the ship respectively.

When the north point is pulled it is implied that some force pulls. That force is the same kind of force which resides in the blue end of the magnet. Remember blue pulls.

To adjust the semi-circular part of the deviation, place the ships head on east or west correct magnetic. It is better to begin with east or west rather than north or south, because the deviation in those points is usually the greatest. When the ship's head is steady on east, look at the compass and see whether the north point has been drawn toward the bow or toward the stern. Correct the compass with fore and aft magnets. If the north point has been drawn towards the bow, your magnets must have their blue ends towards the stern, and vice versa. Begin by placing a magnet in the lowest compartment; note the result. If not sufficient, place another magnet in the lowest compartment on the opposite side; its blue end must be in the same direction as the first. If the magnets still do not pull sufficiently, raise them one step at a time. It will be better to use three magnets on each side in the lowest spaces, than to use one pair in the highest space. Having brought the compass to point correctly, place the ship's head on north or south. Note whether the north point is drawn towards the starboard or port side. Correct the compass with thwartship magnets. If north is drawn to starboard, then the blue ends of the magnets must be to port, and vice versa. Place a magnet in the lowest compartment, raise it and add more magnets if necessary as before. Now place your ship's head on the remaining two cardinal points. Correct one-half the deviation you find on the last two cardinal points by a re-adjustment of the magnets. Do not attempt to correct all the error found on the second two points, for you will only throw all the error so corrected into the first two. A magnet in the lowest compartment will correct about five degrees of deviation. It may sometimes happen that a less amount than this requires to be corrected. In this case, place a magnet in the lowest compartment with its blue end in the contrary direction, and in the next compartment above place a second magnet with its blue end in the proper direction. You will now have a force pulling your compass equal to the difference between the two magnets, which will be very small, the uppermost magnet being the dominant force. You may now raise the upper magnet until the required force is obtained.

To correct the quadrantal part of the deviation, place the ship's head on N. E., S. E., S. W., or N. W., the semi-circular deviation having been previously compensated. You will notice that the north and south points are drawn towards the bow and towards the stern in each of these positions. It very rarely happens that the north and south points are drawn towards the sides of the ship. This error, if the semi-circular deviation has been perfectly corrected and if the compass is in the midship plane of the ship, ought to be equal in each of the four quadrants. It is a good plan however, to determine the error in each quadrant, and to correct in any one quadant an amount equal to the mean of these four errors. The correction is made by placing the iron globes on the brackets as far out as possible, and then slowly moving them in until the required correction is obtained. In the usual location of a pilot-house compass, the quadrantal deviation is rarely less than five degrees, or more than ten degrees. It is therefore safe to place the globes on the brackets in the outer position, even if no means are at hand for more accurately placing them. They can do no harm and will be sure to reduce the error even if they do not entirely remove it.

The heeling error is easily corrected by the professional adjuster by means of a dipping needle, which measures the amount of vertical force at the exact location of the compass. The magnet in the vertical brass tube is raised or lowered until this force is neutralized. To accomplish this it is not necessary to list the ship, and the adjustment when properly made adds in no small degree to the steadiness and reliability of the compass and the safety of the ship. Only very general instructions can be given for making this adjustment without the dipping needle. In north latitudes, the red end of the magnet should usually be uppermost. The heeling error is greatest on northerly and southerly courses, and is least on the easterly and westerly courses. On the northerly and southerly courses, the north point of the compass is usually drawn toward the windward or high side of the ship. When this is seen to be the case, the magnet (with the red end uppermost) should be raised by means of the chain attached until the compass points correctly. This is on the supposition that the compass is correct when the ship is on an even keel. In those exceptional cases where the north point is drawn toward the leeward, or low side of the ship, the magnet must be placed in its tube with its blue end uppermost.—Copyrighted by John Bliss.

*See drawing on page 13.

Affairs in Admiralty.

SUPREME COURT DECISION IN A LAKE CASE.

In the only decision of a maritime nature handed down by the supreme court of the United States for some time past, Judge Brown, formerly of Detroit, and now Justice Brown of the supreme court, is upheld. The case is that of Craig vs. the Continental Insurance Company. It dates back to 1883 when James J. Reardon, now of Crosby & Macdonald, Chicago, represented Crosby & Dimock, insurance agents of Buffalo. Mr. Justice Blatchford delivered the opinion of the court in which the case is stated as follows:

"This is an action at law brought by Thomas Craig, administrator of the estate of John Carbry, deceased, against the Continental Insurance Company of New York and three other insurance corporations, to recover under a statute of Michigan $25,000 as damages for the death of Carbry, it being alleged that he lost his life through negligence of the defendants in December, 1883. It was commenced in the superior court in the city of Detroit and was removed by the defendants into the circuit court of the United States for the eastern district of Michigan. The defendants were insurers against marine risks of a steamer called the Enterprise. She was stranded Nov. 20, 1883, at Green island, Lake Huron, and had on board a cargo of merchandise and a crew of ten or twelve men. Her owners abandoned her to the insurers and she became the property of the latter. The general agent of the Continental Insurance Company was Mr. Dimock of Buffalo, who was also a member of the firm of Crosby & Dimock, who were general agents for several other companies. James J. Reardon was employed by Crosby & Dimock as a marine inspector. Among his other duties was that of going, when notified, to the assistance of wrecked and stranded vessels insured by the companies represented by Crosby & Dimock, and getting them to a port of safety. On Nov. 29, 1883, Reardon was notified by Crosby & Dimock in regard to the Enterprise and went with a steam tug called the Balize, with steam pumps and engineers to the assistance of the Enterprise. One of the steam pumps was in charge of Carbry. Soon after their arriving at the place where the Enterprise was, her crew being still on board and in charge of her, the steam pumps were set up and she was pumped out and pulled off from the place where she had stranded. This was done under the supervision of Reardon. She was towed in deep water, and although she leaked, she was kept free by the use of one pump for about 66 hours, from 10 o'clock Thursday morning until 4 o'clock the following Sunday morning. Part of her cargo had been removed but it was replaced. Her machinery was disabled and it was necessary that the Balize should take her in tow, to remove her to a port where she could be repaired. She started in tow astern of the Balize, bound for Detroit, at 4 o'clock Sunday morning, Dec. 9, with a crew of thirteen men, including four who were in charge of two steam pumps, one of which was in the care of Carbry. Her mate was in command and Reardon was aboard the Balize. No trouble was experienced until 2 o'clock the next day, 22 hours after she had started; and then, while off Point aux Barques and Saginaw bay, she filled and sank and became a total loss and Carbry lost his life. The declaration alleged that his life was lost through the negligence of the defendants, in particulars which it specified.

"The defendants having in the state court separately demanded a trial of the matters set forth in the declaration, the action was, after its removal, tried in the United States circuit court before the district judge, Judge Brown (now of this court) and a jury; and under the instructions of the court a verdict was rendered in favor of the three defendants other than the Continental Insurance Company. The trial proceeded against the latter company and resulted in a verdict against it for $8,000. On motion and in February, 1886, the verdict was set aside and a new trial was granted. The ground assigned for granting the motion was that the liability of the defendant, if any, was destroyed because it was subject to the provisions of the statute limiting the liability of the owner of the vessel, and the Enterprise was totally lost during the voyage on which the death occurred. A judgment was then entered in favor of the three defendants other than the Continental Insurance Company. The new trial was had before Judge Brown and a jury in March, 1886. There is a bill of exceptions which states that the court instructed the jury to render a verdict in favor of the defendants, which was done. The plaintiff excepted to the instructions of the court. The bill of exceptions contains all the evidence offered on both sides. A judgment in favor of the defendant was rendered in September 1887, and the plaintiff has brought the case to this court by a writ of error. It is stated in the bill of exceptions that prior to the sending of the expedition under Reardon to rescue the Enterprise, she had been abandoned by her owners to the Continental Insurance Company, by which she was insured. and had become its property; and that by reason of her being sunk at the time Carbry lost his life, she became and was a total loss."

The principal contention on the part of the plaintiff was that the statute limiting the liability did not apply to the case, because the vessel had been wrecked and abandoned to the underwriters; that they could not be relieved under the statute from their liability for negligence while engaged in saving the wreck or the cargo, and that she had lost her identity as a vessel. The court held, first, that the propeller was still a "vessel" within the meaning of the statute. Second, an underwriter to whom a stranded vessel has been abandoned is an "owner" within the meaning of the statute. Third, the statute applies to cases of personal injury and death as well as cases of loss or injury to property. Fourth, the restriction of the statute limiting the liability of vessels not "used in rivers or inland navigation" does not apply to a vessel used on the great lakes. Fifth, the "privity or knowledge" of a wrecking master employed by the agent of the underwriter is not the "privity or knowledge" of the owner, within the meaning of the statute limiting the liability so as to charge the owner with responsibility for the negligence of the wrecking master beyond the value of the vessel.

LICENSING HARBOR TUGS.

From a decision just rendered by the supreme court of Illinois it would seem that cities have the right to license harbor tugs. Chicago has taken the initiative in this new scheme for increasing the revenue of municipalities and tug owners of other places will be fortunate if they are not confronted with a similar law. The case is that of Harmon vs. the city of Chicago, which involves the validity of a statue of Illinois and an ordinance of the city of Chicago imposing license fees upon certain boats navigating the Chicago river. The court held that the tug boats which have been licensed by the United States for the coasting trade, and which are engaged in towing vessels in interstate commerce into and out of the Chicago river, must themselves be deemed in law to have engaged in interstate commerce, although their operations were in fact confined largely to the corporate limits of the city of Chicago; that where a state, in the exercise of either the police power or the taxing power, passes laws which in their operation are an interferance with interstate or foreign commerce which congress has undertaken to regulate, they are in controvention to the constitution and laws of the United States, and are consequently void, but where the payment exacted is by way of compensation for improvements in waterways and increased facilities of navigation, furnished at the expense of the state, the tolls exacted are only a reasonable equivalent for benefits conferred, and are in no sense an improper interferance with the commerce itself, and that the license fees imposed on the owners of steam tugs and other similar crafts navigating the Chicago river were merely by way of a toll, compensation or equivalent for the use of the river in its improved condition.

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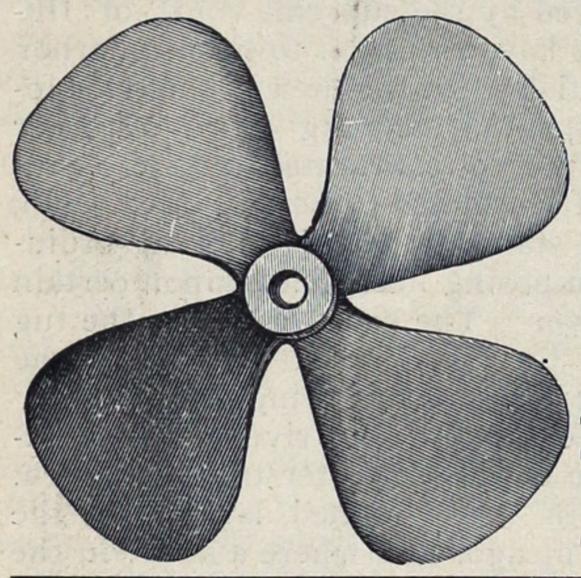

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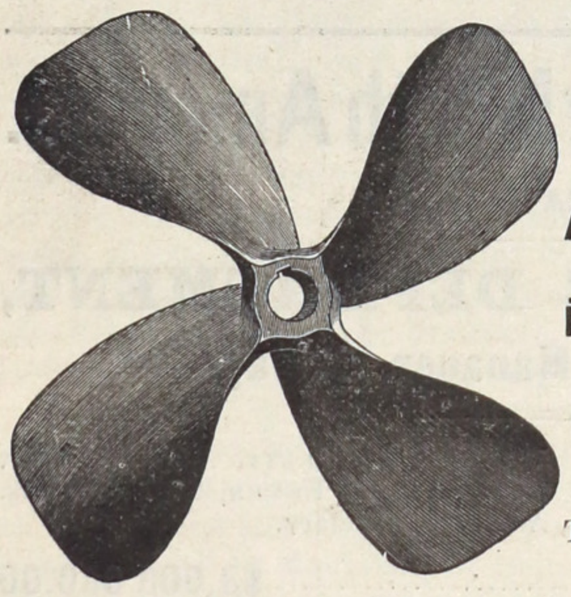

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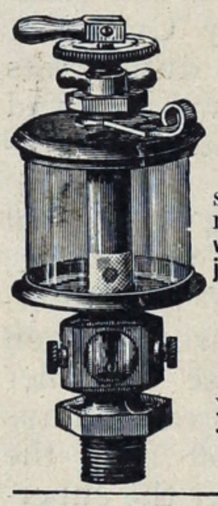

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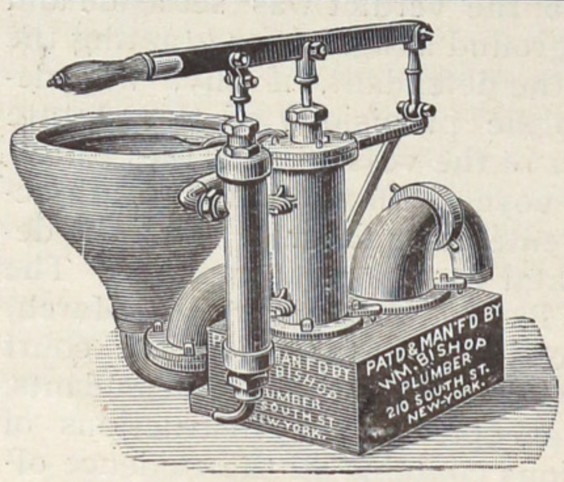

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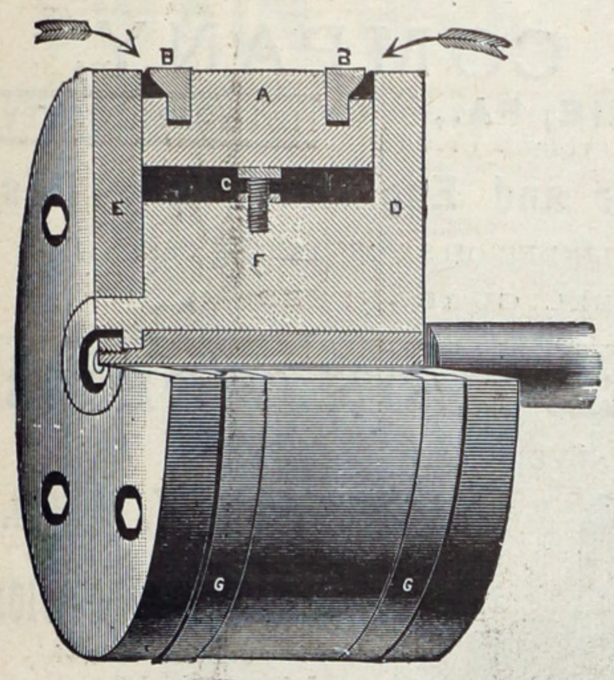

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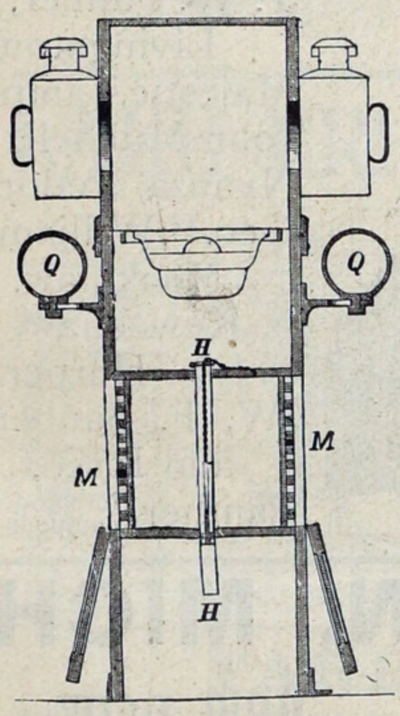

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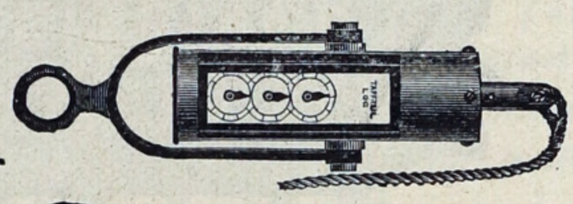

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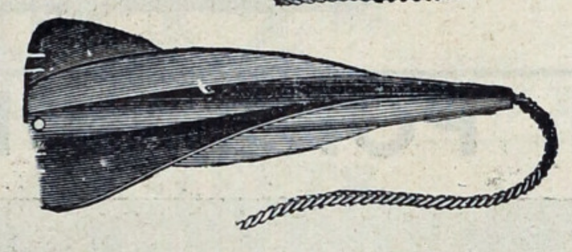

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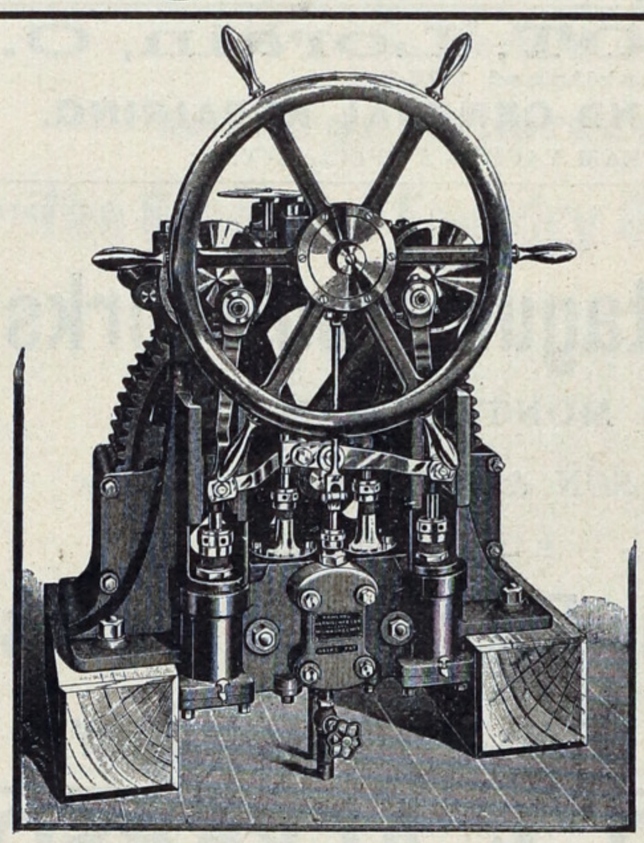

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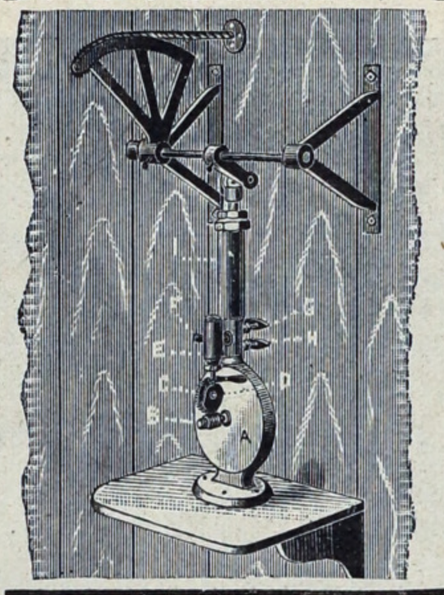

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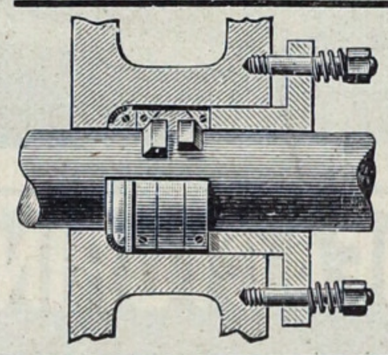

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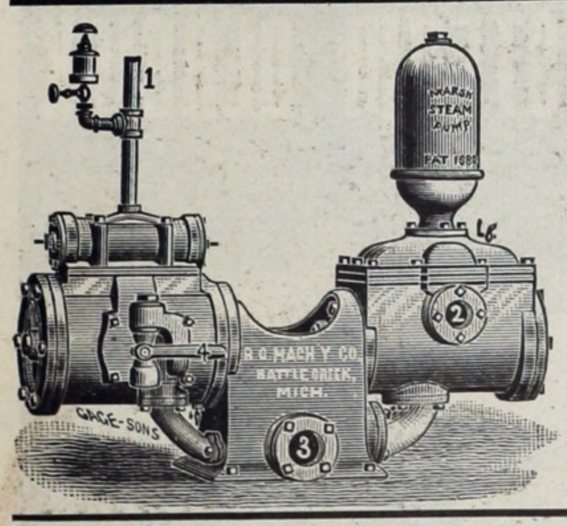

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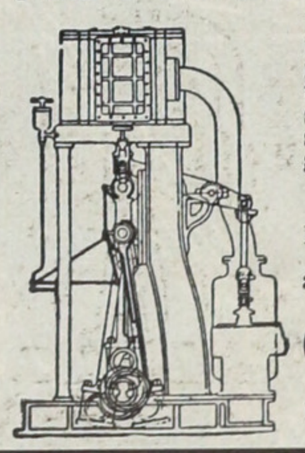

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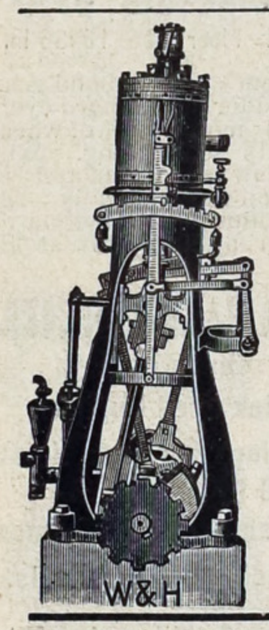

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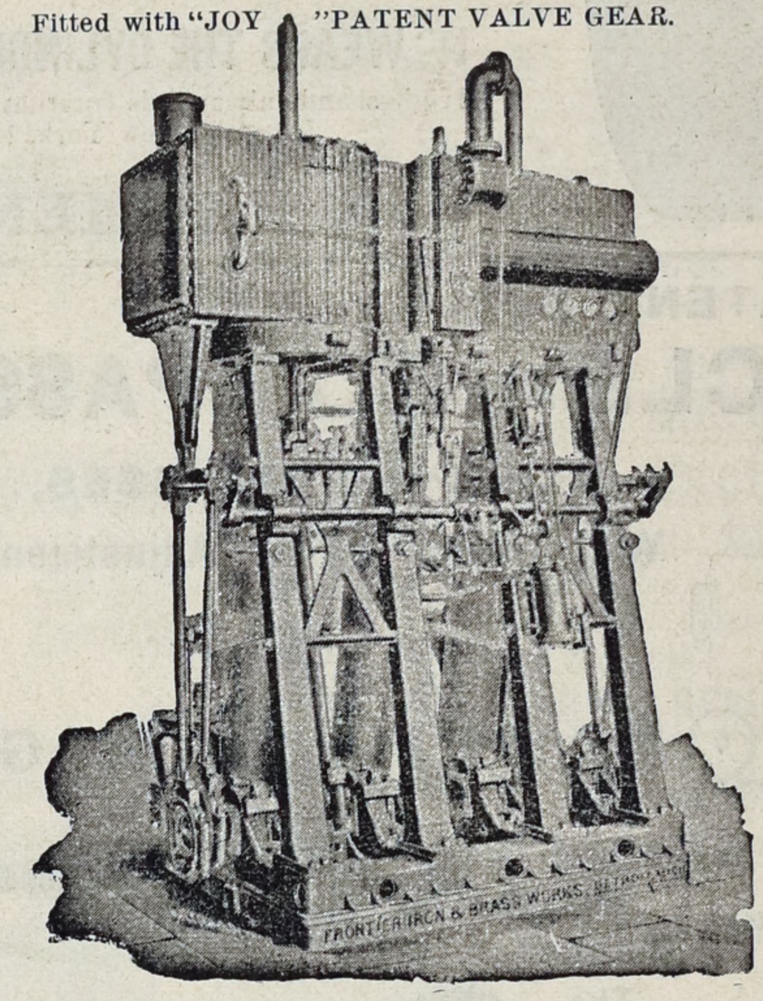

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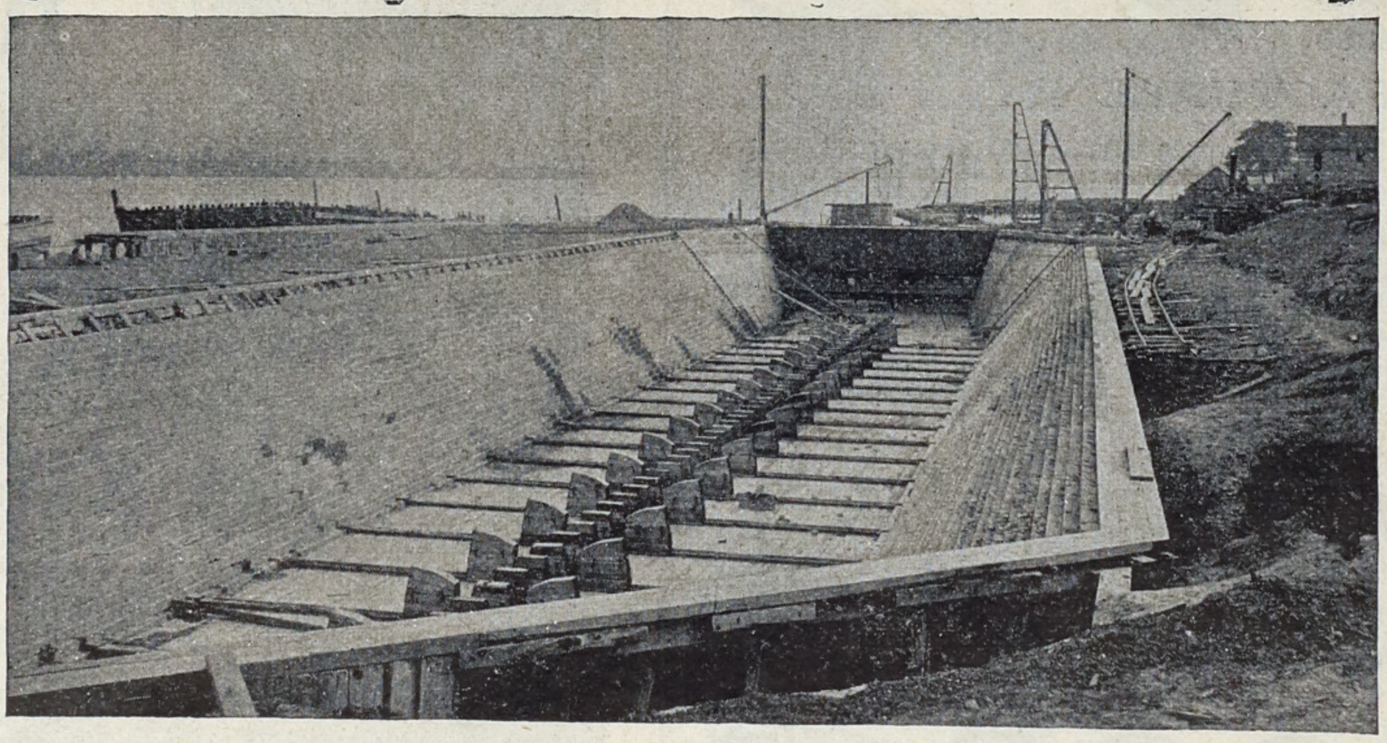

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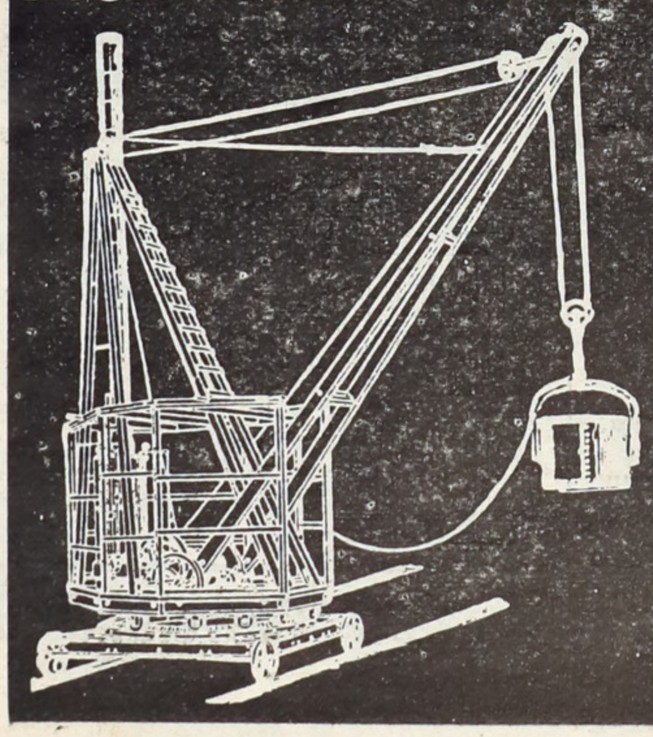

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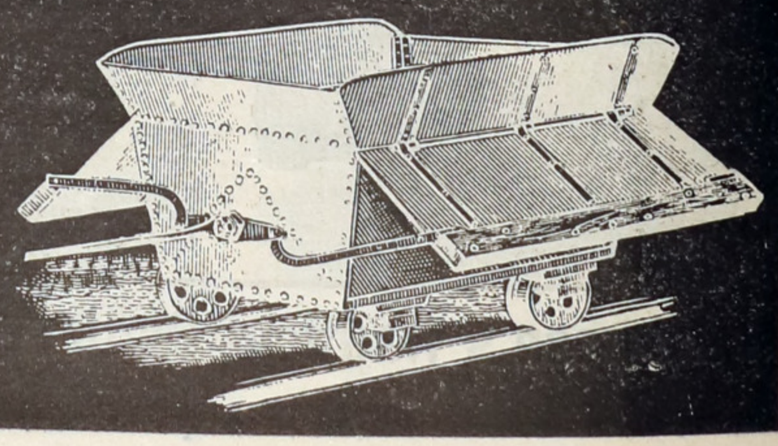

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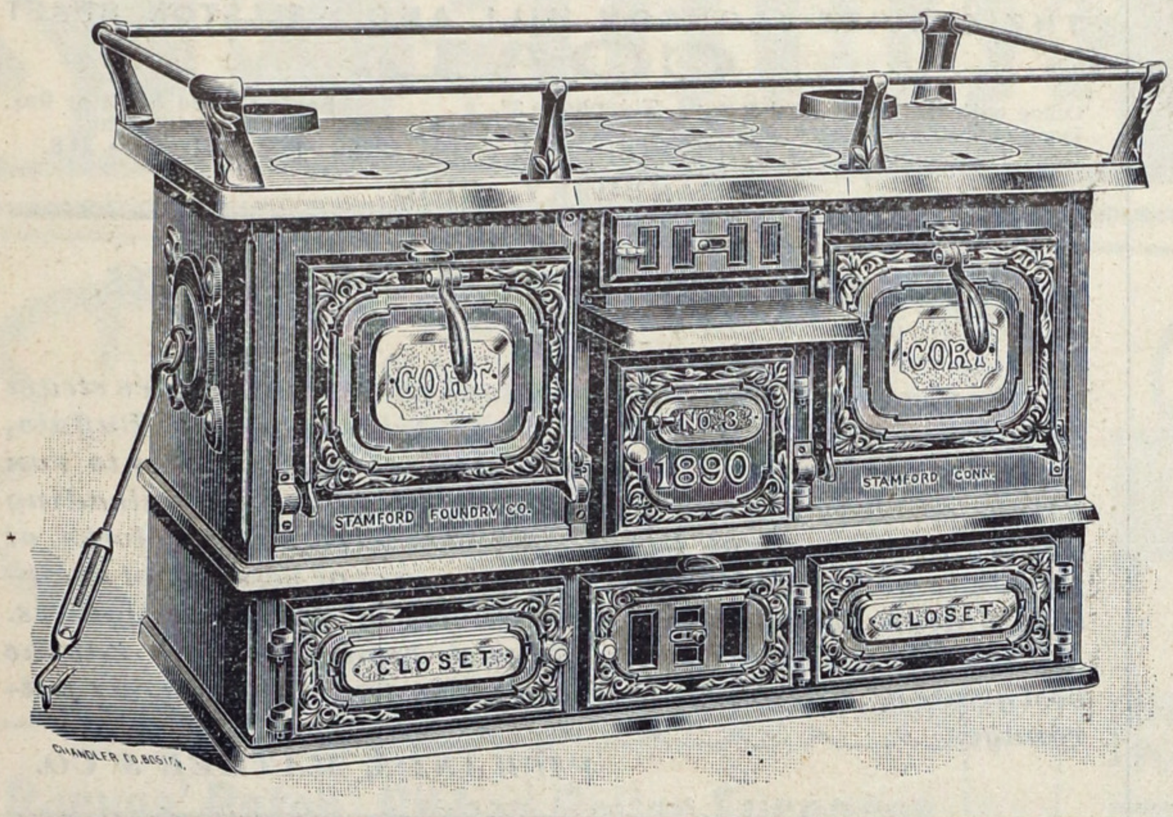

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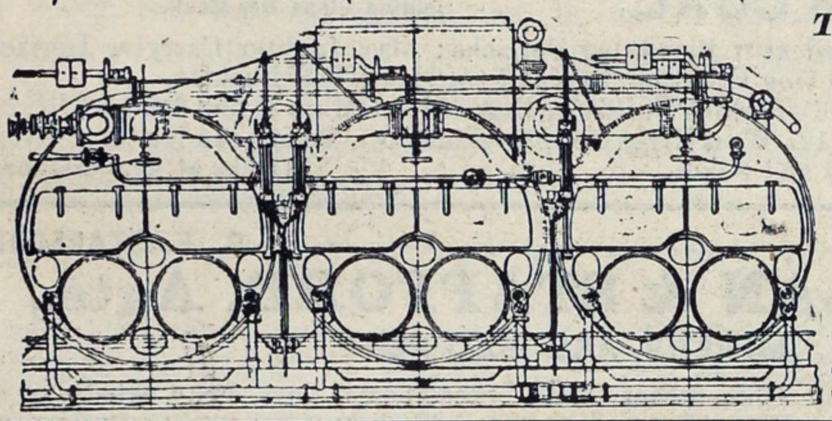

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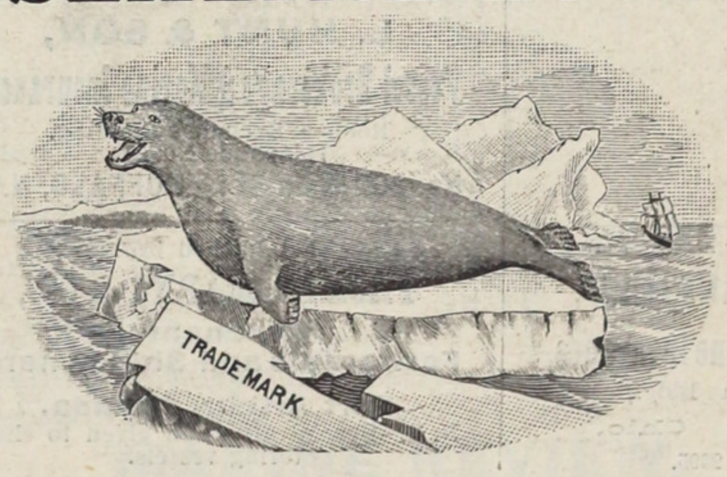

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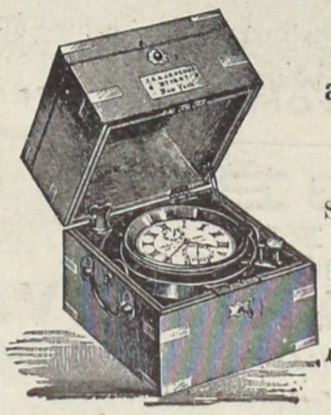

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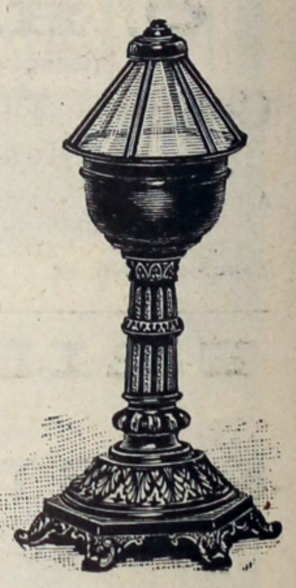

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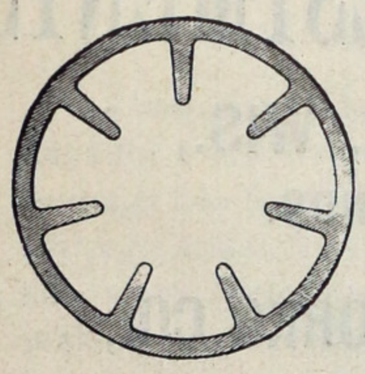

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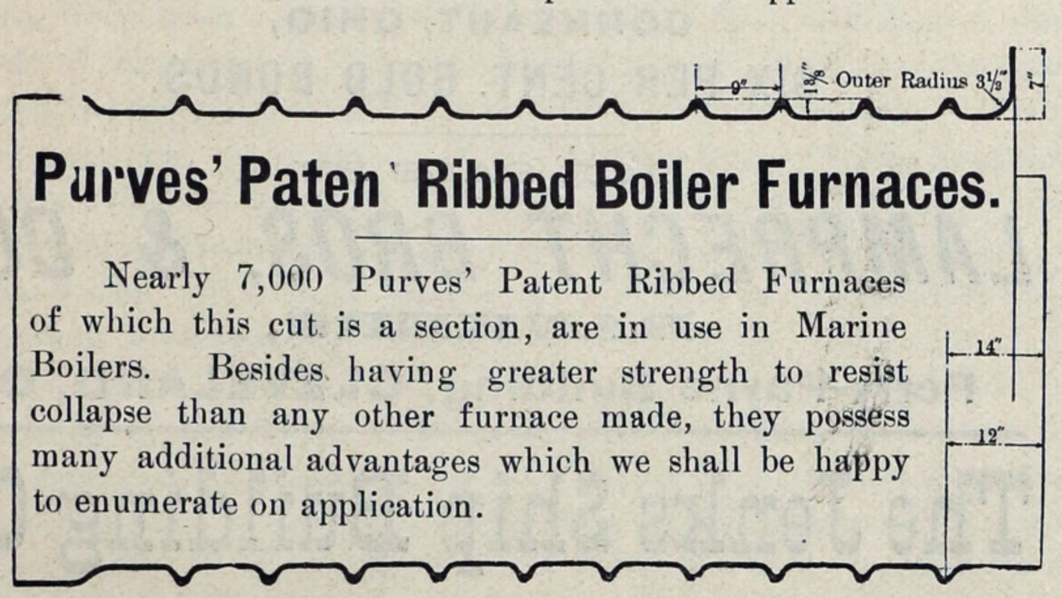

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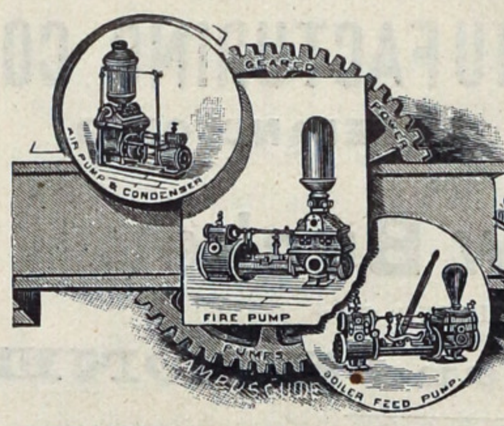

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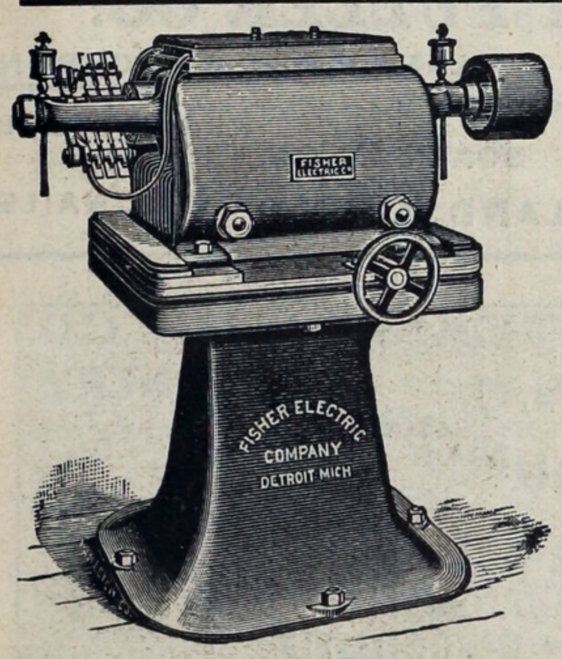

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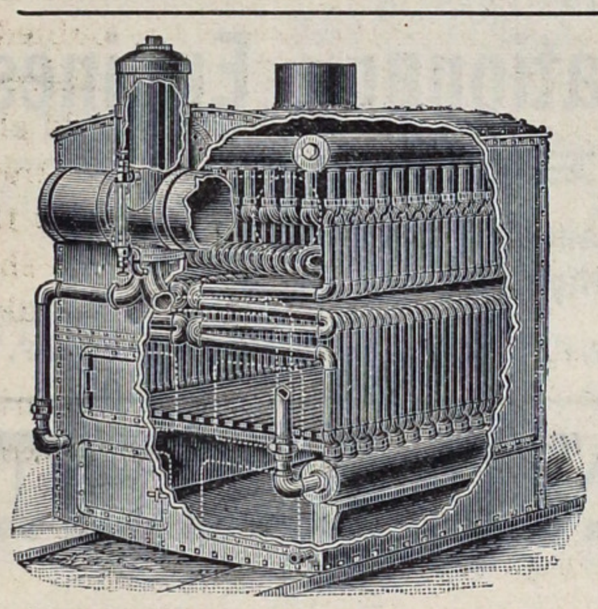

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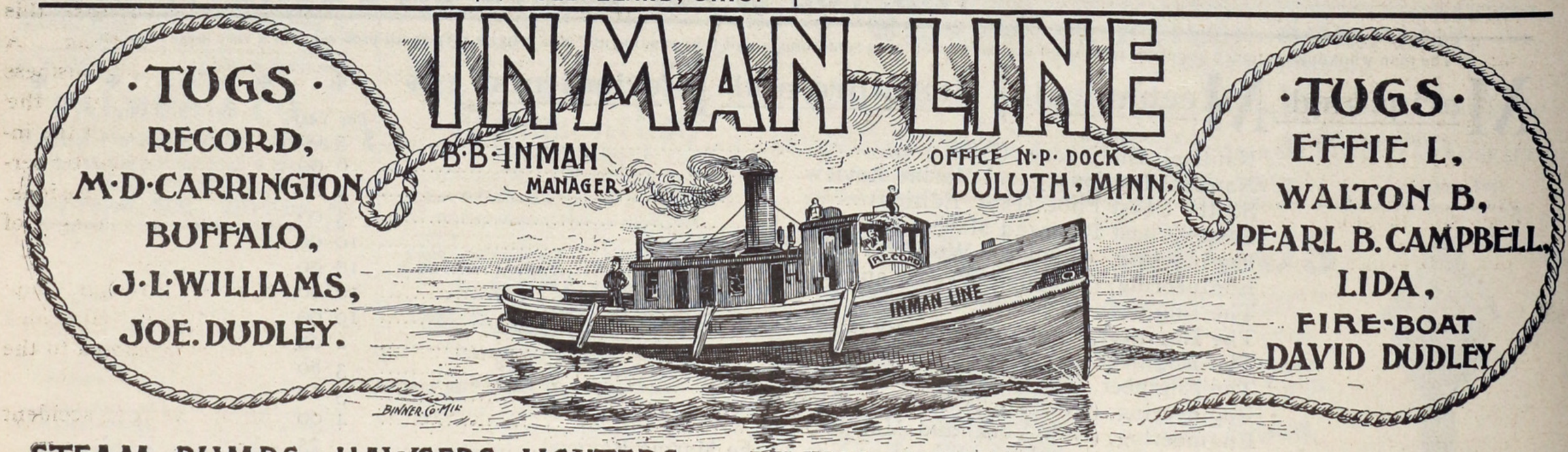

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